

# Functionalized Graphitic Supports for Improved Fuel Cell Catalyst Stability, Phase I

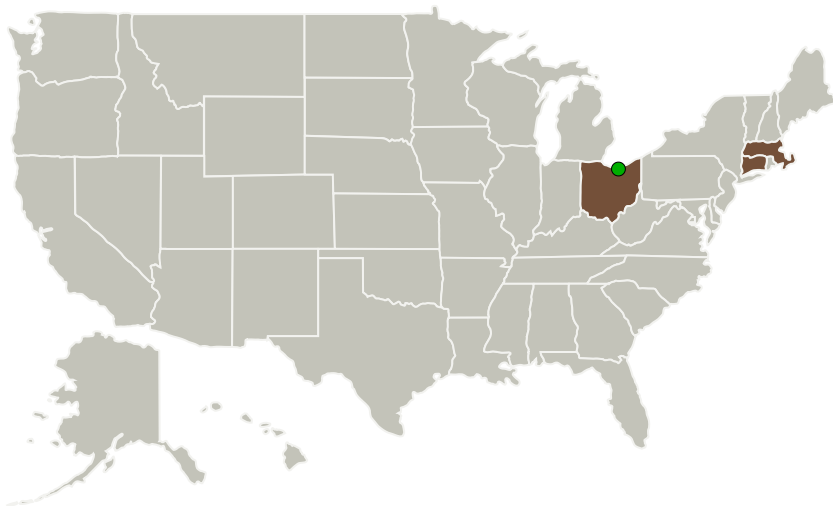
Completed Technology Project (2011 - 2012)



## Project Introduction

Physical Sciences Inc. (PSI) together with the University of Connecticut (UCONN) proposes to demonstrate the improved fuel cell catalyst support durability offered by directly incorporating nitrogen functionality into graphitic carbon supports. In Phase I, PSI will utilize the functionalized carbon support in the construction of single cell fuel cells in order to demonstrate the performance and durability of the support material in the PEM fuel cell environment. The performance of cells upon accelerated life testing will be characterized and compared with that of cells assembled using commercially available support materials to quantify the benefits offered by the functionalized support. In Phase II, PSI will work with UCONN to optimize and scale-up the support production processes. Incorporation of additional functionalities will also be investigated. Demonstration cells will be constructed and delivered for functional and environmental testing at the completion of the Phase II contract.

## Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Physical Sciences, Inc.	Lead Organization	Industry	Andover, Massachusetts
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio
University of Connecticut	Supporting Organization	Academia	Storrs, Connecticut

Primary U.S. Work Locations	
Connecticut	Massachusetts
Ohio	

## Project Transitions

▶ **February 2011:** Project Start

✓ **February 2012:** Closed out

## Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138178>)

## Organizational Responsibility

## Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

## Lead Organization:

Physical Sciences, Inc.

## Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

## Program Director:

Jason L Kessler

## Program Manager:

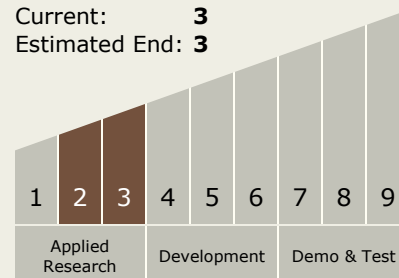
Carlos Torrez

## Principal Investigator:

Christopher M Lang

## Technology Maturity (TRL)

Start: 2  
Current: 3  
Estimated End: 3



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## Technology Areas

### Primary:

- TX03 Aerospace Power and Energy Storage
  - └ TX03.2 Energy Storage
    - └ TX03.2.2 Electrochemical: Fuel Cells

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System